

# **Exhibit**

# **1**



October 21, 2010

Horacio E. Gutierrez  
Corporate Vice President and Deputy General Counsel  
Microsoft Corporation  
1 Microsoft Way  
Redmond, Washington 98052

RE: 802.11 Patent License

Dear Mr. Gutierrez:

This letter is to confirm Motorola's offer to grant Microsoft a worldwide non-exclusive license under Motorola's portfolio of patents and pending applications having claims that may be or become Essential Patent Claims (as defined in section 6.1 of the IEEE bylaws) for a compliant implementation of the IEEE 802.11 Standards. Enclosed is Motorola's 802.11 Annex which includes a non-exhaustive list of patents included in the license. Motorola offers to license the patents under reasonable and non-discriminatory terms and conditions ("RAND"), including a reasonable royalty of 2.25% per unit for each 802.11 compliant product, subject to a grant back license under the 802.11 essential patents of Microsoft. As per Motorola's standard terms, the royalty is calculated based on the price of the end product (e.g., each Xbox 360 product) and not on component software (e.g., Windows Mobile software).

As a convenience to its licensees, Motorola includes all the patents listed on its 802.11 Annex in the license, without regard to further proof of technical essentiality to the 802.11 standards. If Microsoft is only interested in licensing some portion of this portfolio, Motorola is willing to enter into such a license, also on RAND terms.

Motorola will leave this offer open for 20 days. Please confirm whether Microsoft accepts the offer.

Regards,

A handwritten signature in black ink, appearing to read 'Kirk Dailey', written over a horizontal line.

Kirk Dailey  
Corporate Vice President  
Intellectual Property

Enclosures

Motorola Mobility  
Mobile Devices and Home  
600 North U.S. Highway 45  
Libertyville, Illinois 60048-1286  
Telephone: 847.523-3029  
Facsimile: 847.523-0314

MOTOROLA ESSENTIAL PROPERTIES  
WLAN ANNEX

802.11

	PATENT__NUM	INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
1	4860003	DELUCA	COMMUNICATION SYSTEM HAVING A PACKET STRUCTURE FIELD						
		Republic of Korea	Granted	90-700135	1989-5-4	95466	1996-2-7	95-13159	1995-10-25
2	5142533	CRISLER	METHOD FOR CONTROLLING THE SCHEDULING OF MULTIPLE ACCESS TO COMMUNICATION RESOURCES						
		United States	Granted	676653	1991-3-28	5142533	1992-8-25		
3	5164986	BRIGHT	FORMATION OF REKEY MESSAGES IN A COMMUNICATION SYSTEM						
		United States	Granted	662582	1991-2-27	5164986	1992-11-17		
4a	5239294	FLANDERS	METHOD FOR AUTHENTICATION AND PROTECTION OF SUBSCRIBERS IN TELECOMMUNICATION SYSTEMS						
		Canada	Granted	2087433	1991-7-15	2087433	1998-11-17		
		Japan	Granted	3-512685	1991-7-15	2750638	1998-2-27	5-508274	1993-11-18
		Mexico	Granted	9402259	1994-3-28	230119	2005-8-22		
		Mexico	Granted	9100231	1991-7-16	174912	1994-6-22		
		United States	Granted	08/295173	1994-8-22	5572193	1996-11-5		

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
4b	5572193	FLANDERS	METHOD FOR AUTHENTICATION AND PROTECTION OF SUBSCRIBERS IN TELECOMMUNICATION SYSTEMS						
		Canada	Granted	2087433	1991-7-15	2087433	1998-11-17		
		Japan	Granted	3-512685	1991-7-15	2750638	1998-2-27	5-508274	1993-11-18
		Mexico	Granted	9402259	1994-3-28	230119	2005-8-22		
		Mexico	Granted	9100231	1991-7-16	174912	1994-6-22		
		United States	Granted	08/295173	1994-8-22	5572193	1996-11-5		
5	5272724	SOLOMON	WIDEBAND SIGNAL SYNCHRONIZATION						
		United States	Granted	07/695125	1991-5-3	5272724	1993-12-21		
6	5319712	FINKELSTEIN	METHOD AND APPARATUS FOR PROVIDING CRYPTOGRAPHIC PROTECTION OF A DATA STREAM IN A COMMUNICATION SYSTEM						
		Argentina	Granted	329225	1994-8-26	AR256050V1	2004-7-26		
		Canada	Granted	2146024	1994-7-11	2146024	1998-9-22		
		Finland	Granted	951945	1994-7-11	115016	2005-2-15		
		France	Granted	94922507.2	1994-7-11	EP0671092	2000-9-27		
		Great Britain	Granted	94922507.2	1994-7-11	EP0671092	2000-9-27		1995-9-13
		Japan	Granted	7-507561	1994-7-11	3983281	2007-7-13	3983281	2007-7-13
		Republic of Korea	Granted	701584/1995	1994-7-11	145494	1998-4-30	95-704882	1995-11-20
		Sweden	Granted	94922507.2	1994-7-11	EP0671092	2000-9-27		
		United States	Granted	08/112780	1993-8-26	5319712	1994-6-7		

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		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
7	5329547	LING	METHOD AND APPARATUS FOR COHERENT COMMUNICATION IN A SPREAD-SPECTRUM COMMUNICATION SYSTEM						
		Argentina	Granted	327618	1994-3-11	AR256002V1	2004-2-17		
		Canada	Granted	2134230	1994-2-16	2134230	1999-9-21		
		China P.R.	Granted	94190121.1	1994-2-16	ZL94190121.1	1999-10-23	CN1105510A	1995-7-19
		Finland	Granted	945336	1994-2-16	112010	2003-10-15		
		France	Granted	94913263.3	1994-2-16	EP0643889	2002-6-5		
		Georgia	Granted	2061	1994-2-16	1765	1999-6-10		
		Germany	Granted	94913263.3	1994-2-16	69430720.3	2002-6-5		1995-3-22
		Great Britain	Granted	94913263.3	1994-2-16	EP0643889	2002-6-5		1995-3-22
		Italy	Granted	94913263.3	1994-2-16	EP0643889	2002-6-5		
		Japan	Granted	520006/1994	1994-2-16	3464002	2003-8-22	7-506713	1995-7-20
		Malaysia	Granted	PI94000441	1994-2-25	MY-125586-A	2006-8-30		
		Mexico	Granted	9401801	1994-3-11	185865	1997-9-8		
		Poland	Granted	P-306002	1994-2-16	174713	1998-1-29		
		Singapore	Granted	9602270-2	1994-2-16	46295	1998-7-20	46295	1998-2-20
		Sweden	Granted	SE9403860-1	1994-2-16	520542	2003-7-22		
		United States	Granted	08/031258	1993-3-11	5329547	1994-7-12		
8	5467398	PIERCE	A METHOD OF MESSAGING IN A COMMUNICATION SYSTEM						
		France	Granted	95925488.9	1995-7-5	EP0717898	2002-3-20		
		Germany	Granted	95925488.9	1995-7-5	69525912.1	2002-3-20		1996-6-26
		Great Britain	Granted	9604489.6	1995-7-5	2296413	1999-4-28		1996-6-26
		Netherlands	Granted	95925488.9	1995-7-5	EP0717898	2002-3-20		
		Sweden	Granted	95925488.9	1995-7-5	EP0717898	2002-3-20		
		United States	Granted	08/270564	1994-7-5	5467398	1995-11-14		

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		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
9	5560021	VOOK	A POWER MANAGEMENT AND PACKET DELIVERY METHOD FOR USE IN A WIRELESS LOCAL AREA						
		United States	Granted	08/223497	1994-4-4	5560021	1996-9-24		
10	5636223	REARDON	METHODS OF ADAPTIVE CHANNEL ACCESS ATTEMPTS						
		United States	Granted	08/495276	1995-6-27	5636223	1997-6-3		
		United States	Filed	90/010802	2009-12-28				
11	5689563	BROWN	METHOD AND APPARATUS FOR EFFICIENT REAL-TIME AUTHENTICATION AND ENCRYPTION IN A COMMUNICATION SYSTEM						
		United States	Granted	08/457212	1995-6-1	5689563	1997-11-18		
12	5822359	BRUCKERT	A COHERENT RANDOM ACCESS CHANNEL IN A SPREAD-SPECTRUM COMMUNICATION SYSTEM AND METHOD						
		United States	Granted	08/323944	1994-10-17	5822359	1998-10-13		

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		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
13	5311516	KUZNICKI	PAGING SYSTEM USING MESSAGE FRAGMENTATION TO REDISTRIBUTE TRAFFIC						
		Australia	Granted	55504/94	1993-11-8	669037	1996-9-10		
		Brazil	Granted	PI9307693-2	1993-11-8	PI9307693-2	2003-8-5		
		Canada	Granted	2149879	1993-11-8	2149879	1999-4-13		
		China P.R.	Granted	93114975.4	1993-11-23	93114975.4	1999-8-21	CN1109668A	1995-10-4
		Czech Republic	Granted	PV1323-95	1993-11-8	284895	1999-2-1		
		France	Granted	93914116.4	1993-5-25	EP0597085	2001-9-26		
		Germany	Granted	93914116.4	1993-5-25	69330816.8	2001-9-26	597085	1994-5-18
		Great Britain	Granted	93914116.4	1993-5-25	EP0597085	2001-9-26		1994-5-18
		Hungary	Granted	P9501525	1993-11-8	215.879	1993-11-8	P9501525	1996-4-29
		India	Granted	1267/DEL/93	1993-11-11	188578	2003-7-25		
		Japan	Granted	6-500697	1993-5-25	2715664	1997-11-7		1995-1-19
		Mexico	Granted	93 7212	1993-11-18	186521	1997-10-20		
		New Zealand	Granted	258023	1993-11-8	258023	1996-9-4		
		Poland	Granted	P-309244	1993-11-8	175118	1998-5-5		
		Republic of Korea	Granted	702138/1995	1993-11-8	156303	1998-7-21		
		Russian Federation	Granted	95113712	1993-11-8	2121239	1998-10-27		
		Singapore	Granted	9606823-4	1993-5-25	46625	1998-11-16	46625	1998-2-20
		Singapore	Granted	9604727-9	1993-11-8	46443	1998-11-16	46443	1998-2-20
		Sweden	Granted	93914116.4	1993-5-25	EP0597085	2001-9-26		
		Taiwan	Granted	82109863	1993-11-23	NI-68587	1995-3-13	21/34	1994-12-1
		United States	Granted	891503	1992-5-29	5282205	1994-1-25		
		United States	Granted	980084	1992-11-23	5311516	1994-5-10		
		Vietnam	Granted	S-1196/95	1993-11-8	521	1998-5-11		

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14	6069896	BORGSTAHL	CAPABILITY ADDRESSABLE NETWORK AND METHOD THEREFOR						
		China P.R.	Granted	97199757.8	1997-9-16	ZL97199757.8	2003-1-10	CN1238088A	1999-12-8
		European Patent Convention	Filed	97941075	1997-9-16			EP0932960	1999-8-4
		Hong Kong	Granted	103084.1	1997-9-16	HK1024123	2004-1-16	NA	2004-1-16
		Japan	Granted	10-518346	1997-9-16	4070818	2008-1-25		
		United States	Granted	09/104631	1998-6-25	6421347	2002-7-16		
		United States	Granted	09/443855	1999-11-19	6434159	2002-8-13		
		United States	Granted	09/432942	1999-11-3	6487180	2002-11-26		
		United States	Granted	09/432941	1999-11-3	6434158	2002-8-13		
		United States	Granted	09/454846	1999-12-7	6424623	2002-7-23		
		United States	Granted	08/729207	1996-10-15	6069896	2000-5-30		
15	6331972	HARRIS	PERSONAL DATA STORAGE AND TRANSACTION DEVICE SYSTEM AND METHOD						
		United States	Granted	08/794312	1997-2-3	6331972	2001-12-18		
16	5495482	WHITE	VOICE AND DATA PACKET COMMUNICATION METHOD AND APPARATUS						
		United States	Granted	07/719212	1991-6-21	5495482	1996-2-27		
17	5357571	BANWART	A METHOD FOR POINT-TO-POINT COMMUNICATIONS WITHIN SECURE COMMUNICATION SYSTEMS						
		China P.R.	Granted	94107263	1994-6-30	94107263	2001-4-19	1105168A	1995-7-12
		France	Granted	9407921	1994-6-28	9407921	1997-1-24		
		Great Britain	Granted	9412846.9	1994-6-27	2279537	1997-9-10		1995-1-4
		United States	Granted	08/084119	1993-7-1	5357571	1994-10-18		



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	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE	
18 5412722	SHERLY	ENCRYPTION KEY MANAGEMENT							
	United States	Granted	08/114528	1993-8-31	5412722	1995-5-2			

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		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB__DATE
19	5029183	TYMES	PACKET DATA COMMUNICATION SYSTEM						
		Australia	Granted	59319/94	1994-4-6	667264	1996-7-23		
		Australia	Granted	20899/92	1992-8-7	657149	1995-7-11		
		Australia	Granted	59212/94	1994-3-30	671716	1996-12-24		
		Australia	Granted	65305/99	1999-12-16	767841	2004-4-1		
		Austria	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
		Austria	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
		Austria	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
		Austria	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		Austria	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
		Belgium	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		Canada	Granted	2355192	1991-9-12	2355192	2004-11-23		
		Canada	Granted	2119334	1994-3-17	2119334	2006-11-7		
		Canada	Granted	2218268	1997-10-15	2218268	2007-1-16		
		Canada	Granted	2051212	1991-9-12	2051212	2002-1-15		
		Canada	Granted	2186923	1996-10-1	2186923	1996-10-1		
		Canada	Granted	2119335	1994-3-17	2119335	2002-3-5		
		Canada	Granted	2506121	1996-10-1	2506121	2010-9-21		
		Canada	Filed	2564287	1997-10-15				
		Canada	Granted	2072345	1992-6-23	2072345	2004-5-4		
		China P.R.	Granted	92102112.7	1992-4-1	92102112.7	1995-7-15		
		China P.R.	Granted	92111155.X	1992-9-30	ZL92111155X	2000-10-4		
		China P.R.	Granted	99127543.8	1999-12-29	99127543.8	2004-3-31		
		Denmark	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		European Patent Convention	Filed	4018229.7	1991-12-11			EP1478116	2004-11-17
		France	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
		France	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		

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	France	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	France	Granted	96117282.2	1996-10-28	EP0781005	2008-11-19	EP0781005	1997-6-25
	France	Granted	6007713.8	1991-12-11	EP1686730	2008-2-13		
	France	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	France	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	France	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	France	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Germany	Granted	99125057.2	1999-12-15	69925703.4	2005-6-8	EP1017197	
	Germany	Granted	91119559.2	1991-11-15	69122214.2	1996-9-18		
	Germany	Granted	91119370.4	1991-11-13	69118485.2	1996-4-3		
	Germany	Granted	6007713.8	1991-12-11	69133592.3-08	2008-2-13		
	Germany	Granted	91121301.5	1991-12-11	69129838.6	1998-7-22	496986	
	Germany	Granted	96117282.2	1996-10-28	69637751.9-08	2008-11-19	EP0781005	1997-6-25
	Germany	Granted	92120347.7	1992-11-27	69228856.2	1999-4-7	544337	
	Germany	Granted	69431690.3	1994-3-30	619663	2002-11-13		
	Germany	Granted	69433231.3	1994-3-30	69433231.3	2003-10-15	619662	
	Great Britain	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Great Britain	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3	485996	
	Great Britain	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	Great Britain	Granted	6007713.8	1991-12-11	EP1686730	2008-2-13		
	Great Britain	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Great Britain	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Great Britain	Granted	96117282.2	1996-10-28	EP0781005	2008-11-19	EP0781005	1997-6-25
	Great Britain	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	Great Britain	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Ireland	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	Italy	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Italy	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		

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	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	Italy	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Italy	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
	Italy	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Italy	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Japan	Granted	4-232534	1992-9-1	3583446	2004-8-6		
	Japan	Granted	6-68847	1994-4-7	3515605	2004-1-23		2004-1-23
	Japan	Filed	6-68846	1994-4-7				
	Japan	Granted	8-284008	1996-10-25	4418537	2009-12-4		
	Japan	Granted	03-346136	1991-12-27	3429782	2003-5-16		
	Netherlands	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Republic of Korea	Granted	0006993/1994	1994-4-2	290435	2001-3-2		
	Republic of Korea	Granted	6992/94	1994-4-4	328796	2002-3-5		
	Spain	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
	Spain	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	Spain	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Spain	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Spain	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Sweden	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Sweden	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Switzerland	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Taiwan	Granted	83104968	1994-5-31	69060	1995-4-11		1994-12-21
	Taiwan	Granted	80109543	1991-12-5	NI-56950	1992-10-12		1992-6-1
	United States	Granted	08/183069	1994-1-18	5479441	1995-12-26		
	United States	Granted	08/661731	1996-6-12	5646389	1997-7-8		
	United States	Granted	90/007742	2005-9-30	5479441C1	2008-6-24		
	United States	Granted	09/338744	1999-6-23	7358857	2008-4-15		
	United States	Granted	09/222126	1998-12-29	6580700	2003-6-17		

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	United States	Granted	07/923771	1992-8-3	5401944	1995-3-28		
	United States	Granted	07/799172	1991-11-27	5280498	1994-1-18		
	United States	Granted	08/549051	1995-10-27	5815811	1998-9-29		
	United States	Granted	07/923776	1992-8-3	5393965	1995-2-28		
	United States	Granted	08/344737	1994-11-23	5668803	1997-9-16		
	United States	Granted	08/747034	1996-11-8	6002918	1999-12-14		
	United States	Granted	08/411289	1995-3-27	5866888	1999-2-2		
	United States	Granted	08/044648	1993-4-8	5528621	1996-6-18		

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20	5479441	KRAMER	PACKET DATA COMMUNICATION SYSTEM						
		Australia	Granted	59319/94	1994-4-6	667264	1996-7-23		
		Australia	Granted	20899/92	1992-8-7	657149	1995-7-11		
		Australia	Granted	59212/94	1994-3-30	671716	1996-12-24		
		Australia	Granted	65305/99	1999-12-16	767841	2004-4-1		
		Austria	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
		Austria	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
		Austria	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
		Austria	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		Austria	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
		Belgium	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		Canada	Granted	2355192	1991-9-12	2355192	2004-11-23		
		Canada	Granted	2119334	1994-3-17	2119334	2006-11-7		
		Canada	Granted	2218268	1997-10-15	2218268	2007-1-16		
		Canada	Granted	2051212	1991-9-12	2051212	2002-1-15		
		Canada	Granted	2186923	1996-10-1	2186923	1996-10-1		
		Canada	Granted	2119335	1994-3-17	2119335	2002-3-5		
		Canada	Granted	2506121	1996-10-1	2506121	2010-9-21		
		Canada	Filed	2564287	1997-10-15				
		Canada	Granted	2072345	1992-6-23	2072345	2004-5-4		
		China P.R.	Granted	92102112.7	1992-4-1	92102112.7	1995-7-15		
		China P.R.	Granted	92111155.X	1992-9-30	ZL92111155X	2000-10-4		
		China P.R.	Granted	99127543.8	1999-12-29	99127543.8	2004-3-31		
		Denmark	Granted	94105049.4	1994-3-30	619663	2002-11-13		
		European Patent Convention	Filed	4018229.7	1991-12-11			EP1478116	2004-11-17
		France	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
		France	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		

MOTOROLA ESSENTIAL PROPERTIES  
WLAN ANNEX

PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	France	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	France	Granted	96117282.2	1996-10-28	EP0781005	2008-11-19	EP0781005	1997-6-25
	France	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	France	Granted	6007713.8	1991-12-11	EP1686730	2008-2-13		
	France	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	France	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	France	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Germany	Granted	99125057.2	1999-12-15	69925703.4	2005-6-8	EP1017197	
	Germany	Granted	91119559.2	1991-11-15	69122214.2	1996-9-18		
	Germany	Granted	91119370.4	1991-11-13	69118485.2	1996-4-3		
	Germany	Granted	6007713.8	1991-12-11	69133592.3-08	2008-2-13		
	Germany	Granted	91121301.5	1991-12-11	69129838.6	1998-7-22	496986	
	Germany	Granted	96117282.2	1996-10-28	69637751.9-08	2008-11-19	EP0781005	1997-6-25
	Germany	Granted	92120347.7	1992-11-27	69228856.2	1999-4-7	544337	
	Germany	Granted	69431690.3	1994-3-30	619663	2002-11-13		
	Germany	Granted	69433231.3	1994-3-30	69433231.3	2003-10-15	619662	
	Great Britain	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Great Britain	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3	485996	
	Great Britain	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	Great Britain	Granted	6007713.8	1991-12-11	EP1686730	2008-2-13		
	Great Britain	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Great Britain	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Great Britain	Granted	96117282.2	1996-10-28	EP0781005	2008-11-19	EP0781005	1997-6-25
	Great Britain	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	Great Britain	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Ireland	Granted	94105048.6	1994-3-30	619662	2003-10-15		
	Italy	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Italy	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		

MOTOROLA ESSENTIAL PROPERTIES  
WLAN ANNEX

PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	Italy	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Italy	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
	Italy	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Italy	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Japan	Granted	4-232534	1992-9-1	3583446	2004-8-6		
	Japan	Granted	6-68847	1994-4-7	3515605	2004-1-23		2004-1-23
	Japan	Filed	6-68846	1994-4-7				
	Japan	Granted	8-284008	1996-10-25	4418537	2009-12-4		
	Japan	Granted	03-346136	1991-12-27	3429782	2003-5-16		
	Netherlands	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Republic of Korea	Granted	0006993/1994	1994-4-2	290435	2001-3-2		
	Republic of Korea	Granted	6992/94	1994-4-4	328796	2002-3-5		
	Spain	Granted	91119370.4	1991-11-13	EP0485996	1996-4-3		
	Spain	Granted	91119559.2	1991-11-15	EP0486973	1996-9-18		
	Spain	Granted	91121301.5	1991-12-11	EP0496986	1998-7-22		
	Spain	Granted	92120347.7	1992-11-27	EP0544337	1999-4-7		
	Spain	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Sweden	Granted	99125057.2	1999-12-15	EP1017197	2005-6-8		
	Sweden	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Switzerland	Granted	94105049.4	1994-3-30	619663	2002-11-13		
	Taiwan	Granted	83104968	1994-5-31	69060	1995-4-11		1994-12-21
	Taiwan	Granted	80109543	1991-12-5	NI-56950	1992-10-12		1992-6-1
	United States	Granted	08/183069	1994-1-18	5479441	1995-12-26		
	United States	Granted	08/661731	1996-6-12	5646389	1997-7-8		
	United States	Granted	90/007742	2005-9-30	5479441C1	2008-6-24		
	United States	Granted	09/338744	1999-6-23	7358857	2008-4-15		
	United States	Granted	09/222126	1998-12-29	6580700	2003-6-17		



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PATENT_NUM		INVENTOR		TITLE					
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
		United States	Granted	07/923771	1992-8-3	5401944	1995-3-28		
		United States	Granted	08/549051	1995-10-27	5815811	1998-9-29		
		United States	Granted	07/799172	1991-11-27	5280498	1994-1-18		
		United States	Granted	07/923776	1992-8-3	5393965	1995-2-28		
		United States	Granted	08/344737	1994-11-23	5668803	1997-9-16		
		United States	Granted	08/747034	1996-11-8	6002918	1999-12-14		
		United States	Granted	08/411289	1995-3-27	5866888	1999-2-2		
		United States	Granted	08/044648	1993-4-8	5528621	1996-6-18		
21	5519730	JASPER	COMMUNICATION SIGNAL HAVING A TIME DOMAIN PILOT COMPONENT						
		Australia	Granted	24677/92	1992-8-14	663109	1996-1-16		
		Brazil	Granted	PI9105788-4	1991-5-17	PI9105788-4	1999-7-17	1131	1992-8-4
		Brazil	Granted	PI9205509-5	1992-8-14	PI9205509-5	1999-8-25	1218	1994-4-5
		Canada	Granted	2064758-2	1991-5-17	2064758	1996-11-12		
		Canada	Granted	2098011	1992-8-14	2098011	1999-6-22		
		China P.R.	Granted	92110850.8	1992-9-24	44525	1998-10-24	CN1072048A	1993-5-12
		Georgia	Granted	2152	1992-8-14	1766	1999-6-6		
		Great Britain	Granted	9312028.5	1992-8-14	2266645	1996-5-8		1993-11-3
		Hong Kong	Granted	97102445.1	1997-12-16	HK1000870	1998-5-1		
		India	Granted	417/DEL/91	1991-5-14	180400	1998-12-18		
		Japan	Granted	5-508377	1992-8-14	3455537	2003-7-25		
		Mexico	Granted	9206164	1992-10-26	180732	1996-1-31		1993-4-1
		Republic of Korea	Granted	92-700313	1991-5-17	137129	1998-2-3		
		Republic of Korea	Granted	93-701966	1992-8-14	109964	1996-12-30	96-12169	1996-9-16
		United States	Granted	07/783289	1991-10-28	5519730	1996-5-21		

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	PATENT_NUM	INVENTOR	TITLE		Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
			COUNTRY	STATUS						
22	6236674	MORELLI	TRANSCIEVER CONTROL WITH SLEEP MODE OPERATION							
		United States	Granted	08/619797	1996-3-20	6236674	2001-5-22			
		United States	Granted	08/605914	1996-2-23	5838720	1998-11-17			
		United States	Granted	09/728564	2000-6-15	6978149	2005-12-20			

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
23	6404772	BEACH	VOICE AND DATA WIRELESS COMMUNICATIONS NETWORK AND METHOD						
		Australia	Granted	2008207663	2008-9-1	2008207663	2009-6-25		
		Australia	Filed	2008203424	2008-7-31				
		Australia	Granted	45860/02	2001-7-27	781434	2005-9-8		
		Australia	Granted	2008203425	2008-7-31	2008203425	2009-9-17		
		Brazil	Filed	PI0117231-0	2001-7-27				
		Brazil	Filed	PI0117232-8	2004-7-27				
		Brazil	Filed	PI0107091-6	2001-7-27				
		Brazil	Filed	PI0117230-1	2001-7-27				
		Canada	Filed	2517821	2001-7-27				
		Canada	Filed	2517832	2001-7-27				
		Canada	Granted	2517825	2001-7-27	2517825	2009-12-1		
		Canada	Filed	2389109	2001-7-27				
		European Patent Convention	Filed	5018176.7	2001-7-27			1605635	2005-12-14
		European Patent Convention	Filed	5018175.9	2001-7-27			EP1603279	2006-1-4
		European Patent Convention	Filed	5018174.2	2001-7-27			1605634	2005-12-14
		Finland	Granted	1955073	2001-7-27	1210830	2006-3-8		
		France	Granted	1955073	2001-7-27	1210830	2006-3-8		
		Germany	Granted	1955073	2001-7-27	60117800.9-08	2006-3-8		
		Great Britain	Granted	1955073	2001-7-27	1210830	2006-3-8		
		Italy	Granted	1955073	2001-7-27	1210830	2006-3-8	WO02/11476	
		Japan	Granted	2005320965	2005-11-4	4177842	2008-8-29	2006054928	2006-2-23
		Japan	Granted	2005320966	2005-11-4	4209418	2009-1-14	2006087140	2006-2-23
		Japan	Granted	2002-515867	2001-7-27	4128445	2008-5-23	2004-505573	2004-2-19

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	Republic of Korea	Granted	10-2005-7023389	2005-12-6	799392	2008-1-23		
	Republic of Korea	Granted	10-2002-7003594	2001-7-27	796846	2008-1-15		
	Republic of Korea	Granted	10-2005-7023390	2005-12-6	754350	2007-8-27		
	Republic of Korea	Granted	10-2005-7023391	2005-12-6	754859	2007-8-28		
	Sweden	Granted	1955073	2001-7-27	1210830	2006-3-8		
	United States	Filed	10/033861	2001-12-27			US2002005457 4A1	2002-5-9
	United States	Filed	11/193521	2005-7-29			US2005028123 5A1	2005-12-22
	United States	Filed	11/192574	2005-7-29			US2005028125 2A1	2005-12-22
	United States	Granted	09/627092	2000-7-27	6404772	2002-6-11		
	United States	Filed	11/193772	2005-7-29			US2006000237 8A1	2006-1-5

MOTOROLA ESSENTIAL PROPERTIES  
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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
24	6473449	CAFARELLA	HIGH-DATA-RATE WIRELESS LOCAL AREA NETWORK						
		Canada	Granted	2176401	1995-2-3	2176401	2003-7-8		
		China P.R.	Granted	95191641.6	1995-2-3	ZL95191641.6	2002-4-24		
		China P.R.	Granted	1136147.6	1996-8-15	ZL01136147.6	2009-4-29		
		India	Granted	114/MAS/95	1995-1-31	188220	1995-1-31		
		Indonesia	Granted	P-950270	1995-3-17	ID0008776	2002-9-10		
		Japan	Granted	2002-329562	1995-2-3	3532556	2004-3-12	2003-168999	2003-6-13
		Japan	Granted	521825/1995	1995-2-3	3406319	2003-3-7		
		Malaysia	Granted	PI 95000226	1995-1-27	MY-114861-A	2003-2-28		
		Malaysia	Granted	PI20014245	1995-1-27	MY-127750-A	2006-12-29		
		Taiwan	Granted	84100724	1995-1-27	NI-073357	1996-1-10	84100724	1995-9-1
		United States	Granted	09/487395	2000-1-18	6473449	2002-10-29		
		United States	Granted	08/369778	1994-12-30	5809060	1998-9-15		
		United States	Granted	09/048651	1998-3-26	6075812	2000-6-13		

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WLAN ANNEX  
802.11n

PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
25	7143333	BLANKENSHIP	METHOD AND APPARATUS FOR ENCODING AND DECODING DATA					
	Brazil	Filed	0514179-6	2005-8-3			1952	2008-6-3
	China P.R.	Granted	200580026914.4	2005-8-3	ZL200580026914.4	2010-9-15	CN101032082A	2007-9-5
	European Patent Convention	Filed	5778444.9	2005-8-3			1790081	2007-5-30
	India	Filed	410/KOLNP/2007	2005-8-3				
	Japan	Granted	2007-525672	2005-8-3	4516602	2010-5-21	4516602	2010-8-4
	Republic of Korea	Granted	10-2007-7003244	2005-8-3	10-884698	2009-2-13		
	Russian Federation	Granted	2007107953	2005-8-3	2370886	2009-10-20		
	United States	Granted	11/004359	2004-12-3	7143333	2006-11-28	US-2006-0031744-A1	2006-2-9
26	7493548	NIMBALKER	METHOD AND APPARATUS FOR ENCODING AND DECODING DATA					
	United States	Granted	11/275937	2006-2-6	7493548	2009-2-17	US2007022039 5A1	2007-9-20

MOTOROLA ESSENTIAL PROPERTIES  
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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
27	7165205	BLANKENSHIP METHOD AND APPARATUS FOR ENCODING AND DECODING DATA							
		Canada	Granted	2564395	2005-5-11	2564395	2009-7-7		
		China P.R.	Filed	200580008388.9	2005-5-11			CN1934789A	2007-3-21
		European Patent Convention	Filed	5747940.4	2005-5-11			1747613	2007-1-31
		India	Filed	2310/KOLNP/2006	2005-5-11				
		Israel	Filed	177439	2005-5-11				
		Japan	Granted	2007-502126	2005-5-11	4558037	2010-7-30	2007-529531	2007-9-6
		Republic of Korea	Granted	10-2006-7023750	2005-5-11	10-861893	2008-9-30		
		Taiwan	Filed	94115484	2005-5-13			200611497	2006-4-1
		United States	Granted	10/874611	2004-6-23	7165205	2007-1-16	US-2005-0257119-A1	2005-11-17

# **Exhibit**

# **2**





October 29, 2010

VIA FEDERAL EXPRESS

Horacio E. Gutierrez  
Corporate Vice President and Deputy General Counsel  
Microsoft Corporation  
1 Microsoft Way  
Redmond, Washington 98052

RE: H.264 Patent License

Dear Mr. Gutierrez,

This letter is to confirm Motorola's offer to grant Microsoft a worldwide nonexclusive license under Motorola's portfolio of patents and pending applications covering the subject matter of ITU-T Recommendation H.264 ("H.264"). Enclosed is Motorola's H.264 Annex which includes a non-exhaustive list of patents included in the license.

Motorola offers to license the patents on a non-discriminatory basis on reasonable terms and conditions ("RAND"), including a reasonable royalty of 2.25% per unit for each H.264 compliant product, subject to a grant back license under the H.264 patents of Microsoft, and subject to any Motorola commitments made to JVT in connection with an approved H.264 recommendation. As per Motorola's standard terms, the royalty is calculated based on the price of the end product (e.g., each Xbox 360 product, each PC/laptop, each smartphone, etc.) and not on component software (e.g., Xbox 360 system software, Windows 7 software, Windows Phone 7 software, etc.).

As a convenience to its licensees, Motorola includes all the patents listed on its H.264 Annex in the license, without regard to further proof of whether the patents cover the subject matter of H.264. If Microsoft is only interested in licensing some portion of this portfolio, Motorola is willing to enter into such a license, also on RAND terms.

Motorola will leave this offer open for 20 days. Please confirm whether Microsoft accepts the offer.

Regards,

A handwritten signature in black ink, appearing to read 'Kirk W. Dailey'.

Kirk W. Dailey  
Corporate V.P. Intellectual Property

Motorola, Mobility, Inc.  
600 North US Highway 45, Libertyville, Illinois 60048  
Telephone: 847-523-3029 Facsimile: 847-523-0314

MOTOROLA ESSENTIAL PROPERTIES  
ITU-T-H.264

## ITU-T - H.264

PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
1a	6005980	EIFRIG	MOTION ESTIMATION AND COMPENSATION OF VIDEO OBJECT PLANES FOR INTERLACED DIGITAL VIDEO						
		Canada	Granted	2230567	1998-2-25	2230567	2010-7-6		1998-9-7
		Canada	Filed	2702769	2010-4-30				
		Mexico	Granted	2009417	2002-9-26	245861	2007-5-16		
		United States	Granted	08/897847	1997-7-21	6005980	1999-12-21		
		United States	Granted	10/028007	2001-12-20	RE38564	2004-8-10		
1b	Re38564	EIFRIG	MOTION ESTIMATION AND COMPENSATION OF VIDEO OBJECT PLANES FOR INTERLACED DIGITAL VIDEO						
		Canada	Granted	2230567	1998-2-25	2230567	2010-7-6		1998-9-7
		Canada	Filed	2702769	2010-4-30				
		Mexico	Granted	2009417	2002-9-26	245861	2007-5-16		
		United States	Granted	08/897847	1997-7-21	6005980	1999-12-21		
		United States	Granted	10/028007	2001-12-20	RE38564	2004-8-10		

MOTOROLA ESSENTIAL PROPERTIES  
ITU-T-H.264

PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2a	6980596	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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ITU-T-H.264

PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26

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ITU-T-H.264

PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2b	7421025	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB__NUM	PUB__DATE
2c	7310375	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26



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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2d	7310374	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2e	7310376	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2f	7310377	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2g	7477690	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468087	2002-11-21				
		European Patent Convention	Filed	10182726.9	2010-9-29				
		European Patent Convention	Filed	10182629.5	2010-9-29				
		European Patent Convention	Filed	10182686.5	2010-9-29				
		European Patent Convention	Filed	10182624.6	2010-9-29				
		European Patent Convention	Filed	10182654.3	2010-9-29				
		European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
		Japan	Filed	2009-244955	2009-10-23				
		Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
		Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
		Norway	Filed	20042544	2002-11-21				
		Republic of Korea	Filed	10-2004-7007762	2002-11-21				
		United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
		United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
		United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
		United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
		United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7
	United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9
	United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26



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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
2h 7817718	WANG	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
	Canada	Filed	2468087	2002-11-21				
	European Patent Convention	Filed	10182726.9	2010-9-29				
	European Patent Convention	Filed	10182629.5	2010-9-29				
	European Patent Convention	Filed	10182686.5	2010-9-29				
	European Patent Convention	Filed	10182624.6	2010-9-29				
	European Patent Convention	Filed	10182654.3	2010-9-29				
	European Patent Convention	Filed	2804054.1	2002-11-21			1449385	2004-8-25
	Japan	Filed	2009-244955	2009-10-23				
	Japan	Filed	2008-234061	2008-9-11			2008-295111	2008-12-4
	Mexico	Granted	PA/a/2004/004724	2002-11-21	244982	2007-4-13		
	Norway	Filed	20042544	2002-11-21				
	Republic of Korea	Filed	10-2004-7007762	2002-11-21				
	United States	Granted	10/301290	2002-11-20	6980596	2005-12-27	US2003009929 2A1	2003-5-29
	United States	Granted	11/026394	2004-12-30	7310376	2007-12-18	US2005012304 3A1	2005-6-9
	United States	Granted	11/027265	2004-12-30	7310374	2007-12-18	US2005011765 0A1	2005-6-2
	United States	Granted	11/026395	2004-12-30	7421025	2008-9-2	US2005012305 4A1	2005-6-9
	United States	Granted	11/027656	2004-12-30	7310377	2007-12-18	US2005012911 3A1	2005-6-16

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PATENT_NUM		INVENTOR		TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE	
		United States	Granted	11/027869	2004-12-30	7817718	2010-10-19	US2005014716 9A1	2005-7-7	
		United States	Granted	11/027098	2004-12-30	7477690	2009-1-13	US2005012305 1A1	2005-6-9	
		United States	Granted	11/027626	2004-12-30	7310375	2007-12-18	US2005011155 0A1	2005-5-26	
3	5235419	KRAUSE	ADAPTIVE MOTION COMPENSATION USING A PLURALITY OF MOTION COMPENSATORS							
		Canada	Granted	2079862	1992-10-5	2079862	1998-4-7		1993-4-25	
		France	Granted	92117001.5	1992-10-6	EP0538667	2001-9-19	538667	1993-4-28	
		Germany	Granted	69232063.6-08	1992-10-6	EP0538667	2001-9-19			
		Great Britain	Granted	92117001.5	1992-10-6	EP0538667	2001-9-19	538667	1993-4-28	
		Japan	Granted	4-308068	1992-10-22	2875117	1999-1-14		1999-3-24	
		Republic of Korea	Granted	92-19684	1992-10-24	264507	2000-6-1		2000-6-1	
		United States	Granted	784474	1991-10-24	5235419	1993-8-10			
4	6807317	MATHEW	METHOD AND DECODER SYSTEM FOR REDUCING QUANTIZATION EFFECTS OF A DECODED IMAGE							
		United States	Granted	10/280903	2002-10-25	6807317	2004-10-19	US-2004-0081368-A1	2004-4-29	
		United States	Filed	90/010798	2009-12-23					
5	6836514	GANDHI	METHOD FOR THE DETECTION AND RECOVERY OF ERRORS IN THE FRAME OVERHEAD OF DIGITAL VIDEO DECODING SYSTEMS							
		United States	Granted	09/901809	2001-7-10	6836514	2004-12-28	US-2003-0053546-A1	2003-3-20	

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PATENT_NUM	INVENTOR	TITLE		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
6a 7162094	WANG	FREQUENCY COEFFICIENT SCANNING PATHS FOR CODING DIGITAL VIDEO CONTENT									
				United States	Granted	10/902330	2004-7-29	7088867	2006-8-8	US-2005-0008239-A1	2005-1-13
				United States	Granted	10/902392	2004-7-29	6987888	2006-1-17	US-2005-0002582-A1	2005-1-6
				United States	Granted	11/472035	2006-6-21	7177475	2007-2-13	US2006026297 8A1	2006-11-23
				United States	Granted	10/902329	2004-7-29	7206454	2007-4-17	US-2005-0008241-A1	2005-1-13
				United States	Granted	10/301076	2002-11-20	7162094	2007-1-9	US-2004-0096109-A1	2004-5-20
6b 6987888	WANG	FREQUENCY COEFFICIENT SCANNING PATHS FOR CODING DIGITAL VIDEO CONTENT									
				United States	Granted	10/902330	2004-7-29	7088867	2006-8-8	US-2005-0008239-A1	2005-1-13
				United States	Granted	10/902392	2004-7-29	6987888	2006-1-17	US-2005-0002582-A1	2005-1-6
				United States	Granted	11/472035	2006-6-21	7177475	2007-2-13	US2006026297 8A1	2006-11-23
				United States	Granted	10/902329	2004-7-29	7206454	2007-4-17	US-2005-0008241-A1	2005-1-13
				United States	Granted	10/301076	2002-11-20	7162094	2007-1-9	US-2004-0096109-A1	2004-5-20

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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB__DATE
8	5376968	KRAUSE	ADAPTIVE COMPRESSION OF DIGITAL VIDEO DATA USING DIFFERENTIAL MODES SUCCH AS PCM AND DPCM						
		Australia	Granted	57708/94	1994-3-9	663671	1996-2-20		1995-10-12
		Canada	Granted	2118668	1994-3-9	2118668	1998-12-22		1994-9-12
		France	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	615384	2000-9-20
		Germany	Granted	69425919.5	1994-3-10	EP0615384	2000-9-20	DE69425919T2	2000-9-20
		Great Britain	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	615384	2000-9-20
		Ireland	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	615384	2000-9-20
		Japan	Granted	6-66545	1994-3-11	2945268	1999-6-25		
		Mexico	Granted	9401802	1994-3-11	187606	1998-1-7		
		Netherlands	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	615384	2000-9-20
		Norway	Granted	P940858	1994-3-10	311960	2002-2-18		
		Republic of Korea	Granted	94-4658	1994-3-10	244827	1999-11-24		1999-11-24
		Spain	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	2152270	2001-2-1
		Sweden	Granted	94103640.2	1994-3-10	EP0615384	2000-9-20	615384	2000-9-20
		Taiwan	Granted	82102154	1993-3-23	NI-084114	1997-2-11		1997-2-11
		United States	Granted	23251	1993-3-11	5376968	1994-12-27		

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		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
9a	7769087	WANG	PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468086	2002-11-21				
		China P.R.	Filed	200910254137.9	2009-12-3			101715138	2010-5-26
		China P.R.	Filed	200910254136.4	2009-12-3			101715128	2010-5-26
		China P.R.	Filed	200910254135.X	2009-12-3			101715137	2010-5-26
		China P.R.	Granted	2827402.4	2002-11-21	ZL02827402.4	2010-1-20	1615656	2005-5-11
		China P.R.	Filed	200910254134.5	2009-12-3			101715136	2010-5-26
		European Patent Convention	Filed	10182595.8	2010-9-29				
		European Patent Convention	Filed	10182605.5	2010-9-29				
		European Patent Convention	Filed	10182643.6	2010-9-29				
		European Patent Convention	Filed	10183042	2010-9-30				
		European Patent Convention	Filed	2804044.2	2002-11-21			1459562	2004-9-22
		Japan	Filed	2003-548552	2002-11-21			2005-510984	2005-4-21
		Mexico	Filed	MX/a/2008/001309	2008-1-28				
		Mexico	Filed	MX/a/2008/001308	2008-1-28				
		Mexico	Filed	MX/a/2008/001311	2008-1-28				
		Mexico	Filed	MX/a/2008/001312	2008-1-28				
		Mexico	Granted	PA/a/2004/004723	2002-11-21	253886	2008-1-28		
		Norway	Filed	20042543	2002-11-21				
		Republic of Korea	Filed	10-2010-7006173	2010-3-19			10-2010-0047321	2010-5-7
		Republic of Korea	Filed	10-2004-7007734	2002-11-21				

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PATENT_NUM	INVENTOR	TITLE						
	COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
	United States	Granted	11/027888	2004-12-30	7660353	2010-2-9	US2005011765 1A1	2005-6-2
	United States	Filed	11/558207	2006-11-9			US2007006480 1A1	2007-3-22
	United States	Granted	11/027110	2004-12-30	7769087	2010-8-3	US2005011764 9A1	2005-6-2
	United States	Filed	11/027625	2004-12-30			US2005015245 4A1	2005-7-14

MOTOROLA ESSENTIAL PROPERTIES  
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PATENT_NUM		INVENTOR	TITLE						
		COUNTRY	STATUS	Application Num	Application Date	Patent Number	Grant Date	PUB_NUM	PUB_DATE
9b	7660353	WANG	PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT						
		Canada	Filed	2468086	2002-11-21				
		China P.R.	Filed	200910254137.9	2009-12-3			101715138	2010-5-26
		China P.R.	Filed	200910254136.4	2009-12-3			101715128	2010-5-26
		China P.R.	Filed	200910254135.X	2009-12-3			101715137	2010-5-26
		China P.R.	Granted	2827402.4	2002-11-21	ZL02827402.4	2010-1-20	1615656	2005-5-11
		China P.R.	Filed	200910254134.5	2009-12-3			101715136	2010-5-26
		European Patent Convention	Filed	10182595.8	2010-9-29				
		European Patent Convention	Filed	10182605.5	2010-9-29				
		European Patent Convention	Filed	10182643.6	2010-9-29				
		European Patent Convention	Filed	10183042	2010-9-30				
		European Patent Convention	Filed	2804044.2	2002-11-21			1459562	2004-9-22
		Japan	Filed	2003-548552	2002-11-21			2005-510984	2005-4-21
		Mexico	Filed	MX/a/2008/001309	2008-1-28				
		Mexico	Filed	MX/a/2008/001308	2008-1-28				
		Mexico	Filed	MX/a/2008/001311	2008-1-28				
		Mexico	Filed	MX/a/2008/001312	2008-1-28				
		Mexico	Granted	PA/a/2004/004723	2002-11-21	253886	2008-1-28		
		Norway	Filed	20042543	2002-11-21				
		Republic of Korea	Filed	10-2010-7006173	2010-3-19			10-2010-0047321	2010-5-7
		Republic of Korea	Filed	10-2004-7007734	2002-11-21				

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PATENT_NUM	INVENTOR	TITLE						
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	United States	Granted	11/027888	2004-12-30	7660353	2010-2-9	US2005011765 1A1	2005-6-2
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	United States	Granted	11/027110	2004-12-30	7769087	2010-8-3	US2005011764 9A1	2005-6-2
	United States	Filed	11/027625	2004-12-30			US2005015245 4A1	2005-7-14



# **Exhibit**

# **3**

## State of the Art

# FRANDly fire: are industry standards doing more harm than good?

Pat Treacy and Sophie Lawrance\*

Industry standards are widely regarded as beneficial. Subject to appropriate rules, standards promote innovation by circumventing problems of product compatibility (particularly important for technologies reliant on interfaces and networks), they disseminate chosen technologies by allowing access to all comers, and they enhance technology durability. As the US Department of Justice has recently expressed it, open standards allow market participants to share knowledge and develop 'best-of-breed' products.<sup>1</sup> These benefits have the potential to be particularly significant for 'open' or 'planned' standards—where independent standards bodies have been involved from the outset—as compared with *de facto* standards developed by private companies.

However, over the last few years, industry standards have increasingly been in the news for the wrong reasons. For example, headlines have included 'Federal Court rules that Qualcomm abuse industry standard setting process';<sup>2</sup> 'IEEE802 committee on brink of collapse';<sup>3</sup> '100 Gb/s Ethernet talks break down';<sup>4</sup> and 'Rambus found guilty of monopoly and deception'.<sup>5</sup>

Private litigation involving IP rights embodied in standards has also become increasingly prevalent over the past few years. Standards involved in litigation or other regulatory disputes in the recent past range from the MP3 audio compression standard,<sup>6</sup> the JPEG photographic compression standard,<sup>7</sup> the GSM<sup>8</sup> and WCDMA

### Key issues

- The development and production of new high-tech products and services, particularly in the field of telecommunications, is increasingly governed by groups of IP owners—usually actual or potential competitors—who form themselves into standard-setting groups.
- One of the major benefits of standard-setting is that, once a key piece of innovation is developed, its proprietary does not exclude its use by others but allows its use by any third party willing to accept a licence on FRAND ('fair, reasonable, and non-discriminatory') terms.
- The authors examine the state of legal wisdom and experience regarding FRAND terms, particularly in the light of the need to comply with competition law requirements and the ease with which FRAND licensing obligations may be abused.

mobile telephony standards,<sup>9</sup> and the JEDEC memory standard.<sup>10</sup> A number of significant cases in the UK, US, and elsewhere have raised a range of difficult issues, such as whether holding a patent which has been declared essential to a standard deprives the patentee of its right to

\* Pat Treacy is a partner, and Sophie Lawrance an associate, in the competition department of London law firm Bristows. The authors were part of the legal team representing Samsung Electronics Co Limited in litigation with Ericsson in 2006–2007 (now settled), one aspect of which related to issues concerning the 2G and 3G mobile telephone standards. The views expressed in this article are those of the authors alone. The authors would like to thank their colleagues (in particular Philip Westmacott) for their views on the issues discussed in this article.

1 US DOJ Business Review Letter, VMEbus International Trade Association, 30 October 2006.

2 Broadcom press release, 22 March 2007.

3 *Tech News*, 28 March 2007.

4 *The Register*, 18 June 2007; this also relates to an IEEE standard.

5 *The Inquirer*, 2 August 2006.

6 The ongoing litigation in the US brought by Alcatel Lucent against Microsoft customer Gateway; *Lucent Technologies Inc. v Gateway Inc.*, 02cv2060, US District Court, Southern District of California (San Diego).

7 Litigation between Philips and LG in Holland in the Hague District Court; Case Number 261913.

8 A dispute (now settled) between Ericsson and Samsung Electronics in the UK, Holland, Germany, and the US related to this standard.

9 Disputes involving standards lodged or ongoing in 2005–2007 include: *Broadcom Corporation v Qualcomm Incorporated* in the US District Court of New Jersey and before the US International Trade Commission ('US ITC'); Nokia's complaint about Qualcomm in Delaware; *Nokia v InterDigital* in the English High Court; InterDigital complaint against Samsung Electronics before the US ITC; the complaint lodged with the European Commission by Broadcom, Ericsson, Nokia, NEC, Panasonic, and Texas Instruments in relation to Qualcomm. There are understood to be equivalent complaints (in some cases brought by other parties, or by unknown complainants) outstanding before the Korean, Japanese and Indian competition authorities.

10 *In the Matter of Rambus Incorporated*. Final Order and Opinion of the US Federal Trade Commission (FTC) on Remedy, 2 February 2007.

an injunction if it does not offer to licence the patent on the required terms,<sup>11</sup> the meaning of the word ‘essential’ and the right of a private litigant to seek a court declaration as to the essentiality of a particular patent,<sup>12</sup> the extent of the obligation on companies involved in standard setting to declare potentially essential patents,<sup>13</sup> whether (national) competition law can mandate the grant of a compulsory licence where a holder of an essential patent has discriminated against the proposed licensee,<sup>14</sup> and the meaning of the prevalent ‘RAND’ (reasonable and non-discriminatory) or ‘FRAND’ obligation found in the rules of many standards bodies.<sup>15</sup>

Although most standards bodies are governed by rules covering topics such as the process for declaring essential technologies and the basis on which third party access must be permitted to essential patents, there is typically insufficient guidance to answer the more detailed questions of the kind listed above. Despite the recent spate of litigation, the courts have yet to resolve many of the issues. Indeed, adversarial proceedings between private litigants are arguably not the best forum for answering these questions. The cases in this area—which mostly involve the IT or telecoms industries—raise questions of significant commercial concern. For example,

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*What might a FRAND royalty be following a breakdown in cross-licence negotiations, where the only real issue is the value of the licences to be granted?*

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Often, neither company is prepared to accept the risk of a formal judgment settling some of the open questions. Such cases are therefore ripe for pre-judgment settlement.

This article discusses difficulties that standards in the IT and telecoms sectors currently face and the link between them and the prevalence of a multitude of ‘declared essential’ IP rights. We ask whether standards bodies have in some senses brought the problems on themselves, before focusing on the particular question of the meaning of the (F)RAND obligation.

## Standard-setting myths

In at least the telecoms and IT fields, a number of myths about standard setting are in wide circulation. Many of these myths are perpetuated by the standards bodies themselves, with the aim of bolstering the credibility and value of standardization, for example:

- ‘It is possible to set a standard which avoids all patents or software copyright’ (in the IT hardware and telecoms sectors, the level of patenting is such that it is no longer possible to avoid patents except in the rarest of circumstances);
- ‘It is possible to set a standard with full knowledge of all patents contained in the standard’ (the level of patenting is such that participants in the standard setting process may not be aware even of all their own patents, let alone those belonging to third parties; this is exacerbated by patent-mining, a form of aggressive IP management designed to maximize royalty revenue from patent portfolios and by the time lag between the application for and grant of patents);
- ‘It is possible to withdraw or change a standard if a patent is subsequently discovered which the owner is not willing to license on (F)RAND terms’ (once the standard has been set, too much money and time has often been invested, both by the participants in standard setting and by those who have started to produce compatible products and infrastructure, to allow significant technology changes to be made);
- ‘The number of patents which cover technology contained in a standard remains constant or diminishes over the life of the standard’ (the time-lag between application and grant means that this is not so; in addition, many standards are regularly updated by incremental additions which also increase the patent burden);
- ‘Standards are set on an objective basis as a result of the working group choosing the best technology, and are immune from commercial lobbying’ (commercial lobbying is rife);
- ‘FRAND obligations deter companies from patenting with the sole aim of capturing patents over the

11 This question was considered by the US District Court of New Jersey in *Broadcom Corporation v Qualcomm Incorporated*, Civil Action No. 05-3350, judgment of 31 August 2006 (a preliminary judgment on a motion to dismiss). The Court held that such conduct would not deprive the patentee of an injunction. In the authors’ view, this conclusion is flawed (although the right to an injunction might be maintained in circumstances where, for example, the licensee itself withheld a licence of its essential patents). So far as the authors know, this issue has been raised in at least one other dispute, but no court has yet considered the issue other than in preliminary proceedings.

12 *Nokia Corporation v InterDigital Technology Corporation* [2007] FSR 23.

13 The Rambus proceedings in the US (see footnote 10 above).

14 *Standard Tight-head Drum (Standard-Spundfass)* Decision of the Bundesgerichtshof (Federal Supreme Court of Germany), 13 July 2004.

15 This was an issue in the litigation between Ericsson and Samsung referred to above, but was not decided before the case was settled. According to information contained in the press release issued by Broadcom and its co-complainants (see <http://www.broadcom.com/press/release.php?id=774809>), this issue is also central to the complaint to the European Commission about Qualcomm (see footnote 9 above).

standard' (FRAND obligations are so vague as to risk becoming toothless, and there is a widely-held view that the royalties receivable should be related solely to the number of patents declared).

Not all these myths have universal application. For example, the open source movement has seen some considerable success in the software field. However, in many cases, technologies have suffered from the desire of companies to convert participation in standards bodies to balance sheet credits. Other benefits—such as a detailed knowledge of the technical requirements of the standard leading to a reduced time to market—are now arguably perceived to have less value than in the past.

Many of these myths have been scotched in recent years. The utopian basis of the rules of many standards bodies is increasingly being acknowledged by participants in standardized industries (which have seen frequent litigation on such issues), by competition regulators and, to some extent, by the standards bodies themselves. However, while the problems are acknowledged, in many cases solutions have been harder to find.

## The meaning of FRAND

The question of how the FRAND obligation should be interpreted is a good example of the difficulties.

Standards bodies which make use of FRAND declarations—ie a promise that the licensor will make specified technologies available on fair, reasonable, and non-discriminatory terms—rarely, if ever, give any guidance as to what these terms mean. It is not even clear whether the use of the word 'fair' in the FRAND obligation, as typically included in the rules of European standards bodies such as the European Telecommunications Standards Institute ('ETSI'), adds anything to the obligation to offer 'reasonable and non-discriminatory' (RAND) licence terms, as is seen more commonly in the rules of US-based standards bodies.

Nor will most standards bodies intervene in bilateral disputes between members (or between members and non-members) to set a FRAND royalty, or even to give any guidance on the meaning of the commitment, not least because most standards bodies are little more than the sum of their members, with inevitably disparate commercial views.<sup>16</sup> As discussed above, there is a significant risk that either formulation can mean all things to all men. In consequence, the obligation risks becoming toothless.

Economists, lawyers, and industry representatives have proposed various theories as to how FRAND should be interpreted, for example:

- FRAND should be assessed on the basis of industry comparators (in the same or comparable markets);
- FRAND should be assessed by reference to the available share of profit (allocating some part of the overall profit to the technology owner, and some to the product manufacturer);
- FRAND should take into account the total royalty burden (ie the cumulative royalties) likely to be faced by someone wishing to bring a standard-compliant product to market;
- FRAND should be based on the number of patents held by the licensor, by comparison with the total number of patents in the standard (ie a share of a notional suitable maximum royalty level);
- FRAND should take into account the pre-standardization value of the technology (ie patentees should not receive a windfall because their technology has been included in the standard, but should be reimbursed on the basis of the technology's objective quality and centrality to the standard);
- FRAND should take into account the level of the licensor's R&D expenditure in developing the relevant technologies.

It is evident both that some of these theories conflict, and that many of the theories are extremely difficult to apply in the real world. However appropriate it may be in principle to take into account the costs of developing a given set of technologies, this information is often unavailable to licensees. Even the licensor may struggle to distinguish the costs attributable to a particular technology, developed over a number of years, from those which relate to the development of other technologies, and from costs which reflect the development of the licensor's own products which it would not be appropriate to recoup from others on the market. Much research may be expensive but fruitless, while some of best ideas may cost little to realise.

Given the multiplicity of theories, and the difficulties in putting the theories into practice, we consider below in overview whether there is any way of establishing a more objective basis for quantifying FRAND. We take the example of ETSI as the basis for this review.

<sup>16</sup> Patent pools formed 'beneath' some standards may provide more guidance. A good example is the 3G Licensing pool which licences out certain technologies included in the 3GPP mobile telephony standard.

## The example of ETSI

ETSI—the European Telecommunications Standards Institute—is a prominent example of a standards body which imposes a FRAND obligation. In this section, we consider briefly whether the history of ETSI and its IPR policy enables a more objective basis for the meaning of FRAND to be established.

ETSI was established in the late 1980s with responsibility for developing the 2G mobile telephony standard (GSM). It was created in part in response to the wishes of the European Community and the European Free Trade Association, each of which considered European standardization in telecommunications to be a key step in the development of the European single market.

Early in the standardization process, ETSI started to consider how to deal with IP rights held over aspects of the standard. The debate on the IPR issue within ETSI was significantly affected by the involvement of the public authorities, not only the PTTs (the national Postal Telegraph and Telephone companies which formerly held state-granted monopolies in most European countries) but also, notably, the European Commission. As early as 1987, the Commission issued a detailed green paper on the development of the common market for telecommunications services and equipment,<sup>17</sup> emphasizing the important role that standardization had to play in providing European users with a greater variety and better quality of telecommunications services at a lower cost. This was followed in 1990 by a further green paper on the development of European standardization, which included some discussion of the role of ETSI.<sup>18</sup> In March 1991, the Commission wrote to ETSI to make clear its views that Community policies—including in particular in the areas of IP, competition and trade—had to be respected by ETSI during its work and enclosing an extract from its paper entitled ‘Standardisation in the European Economy’.<sup>19</sup>

In the following years, the Commission continued to engage closely with the standardization effort within ETSI and showed particular interest in its attempts to agree an IPR policy (ie a set of rules governing declaration of essential IPRs and access by third parties to such rights). The discussions between ETSI and the Commission during the early 1990s were based on an understanding by ETSI that any IPR policy adopted

would need to have regard to the Community policies identified to it by the Commission. Notable among the policies identified was competition policy, as well as IP and trade policies more generally. Attempts to finalize an ETSI IPR policy were, however, derailed in 1994 by the complaint to the Commission of the Computer and Business Equipment Manufacturers Association (‘CBEMA’) of the USA. The complaint alleged that the ETSI IPR policy amounted to a compulsory licensing scheme and violated Articles 85 and 86 (now 81 and 82) of the Treaty of Rome. Despite the Commission’s involvement in the earlier discussions about the IPR policy, it now indicated to ETSI that it was minded to share CBEMA’s concerns. In particular, the Commission noted:

Once an essential technology is included with the agreement of the IPR holder in the standard, particularly one which is made mandatory pursuant to Community legislation, the owner of the IPR relating to that technology occupies in most if not all situations a dominant position, if not to say *de facto* monopoly, *vis-à-vis* manufacturers requiring licences on that IPR in order to be able to participate in the market for the equipment in question.

The Commission’s intervention eventually led to the development of a modified IPR policy, which excluded the alleged licensing by default obligation.<sup>20</sup> This is essentially the policy—with a few modifications, including the change made in response to the Commission’s 2005 investigation designed to minimize the possibility of patent ambush—that still applies today.<sup>21</sup>

The Commission’s involvement and views remain relevant to interpretation of the current policy. While the exact interpretation of the ETSI rules—which are subject to French law—remain open to debate, the Commission clearly considered that numerous Community policies have a key role to play.

In the authors’ view, competition law and policy are particularly relevant to interpreting the FRAND obligation. This view is supported by the Commission’s own statement in the Horizontal Cooperation Guidelines, which provide guidance on how agreements between competitors should be structured so as to comply with the competition rules, that ‘to avoid elimination of competition in the relevant market(s), access to [standards] must be possible for third parties on fair, reasonable and non-discriminatory terms’.<sup>22</sup>

<sup>17</sup> ‘Towards a dynamic European Economy’ Com (87) 290.

<sup>18</sup> ‘Standardisation in the European Economy’ Com (91) 521.

<sup>19</sup> Communication to ETSI 10th General Assembly, 6 March 1991.

<sup>20</sup> The ETSI IPR Policy is available via the ETSI website: <http://www.etsi.org/legal/home.htm>

<sup>21</sup> Commission Press Release IP/05/1565 of 12 December 2005 available on <http://europa.eu>

<sup>22</sup> Commission Notice: Guidelines on the applicability of Art 81 of the EC Treaty to horizontal cooperation agreements [2001] C3/02, paragraph 174.



The concepts of fairness, reasonableness, and non-discrimination are well established in the case law relating to Article 82 EC (prohibition of abuse of dominance) in particular. For example, cases relating to excessive pricing, unfair trading terms, and discrimination are all directly relevant.

Given the Commission's comments on the likely dominance of the holder of an essential IP right, it seems appropriate to make use of these principles when considering obligations such as the FRAND obligation. Indeed, the Commission has recently opened proceedings into the complaint of a group of six players on the mobile telephony market over Qualcomm's failure to offer FRAND terms to its essential 3G patents.<sup>23</sup> Although the complaint relates primarily to Qualcomm's failure to comply with the terms of the ETSI IPR policy, the Commission has been asked to consider Qualcomm's conduct in the context of Article 82 (charging excessive and discriminatory royalties), rather than under the specific contractual rules governing the IPR policy (which the Commission would not have standing to do).

While the Commission's response remains unknown, a rigorous and reasoned application of the competition rules in this sector would provide assistance in fleshing out the meaning of the FRAND obligation. It would enable companies—and courts required to adjudicate on licensing disputes in this sector—to employ a set of well-established legal principles, and would introduce a more objective basis for determining the royalty payable in any given licensing situation. As ETSI is unlikely to provide further guidance on this issue in the short to medium term (the recent review of the IPR policy undertaken by members at a series of specially convened meetings having had limited practical effect), this development would be welcome to many prospective licensees.

## Recent US developments

It is evident from two recent Business Review Letters written by the US Department of Justice ('DOJ') that some US standards bodies now take more active steps to find new ways of combating the uncertainty surrounding FRAND.<sup>24</sup> (Business Review Letters are written in response to applicants' requests for a statement on the DOJ's antitrust enforcement intentions with respect to a particular agreement or course of conduct.)

The two Review Letters relate to two different standards bodies—the VMEbus International Trade Association ('VITA') and the Institute of Electrical and Electronic Engineers ('IEEE')—but raise very similar questions. In each case, the issue concerned the extent to which participants in standard setting should be permitted to consider the terms on which each technology would be licensed if it is included. The standards bodies in question both noted that they were concerned that the FRAND/RAND obligation was proving insufficient to ensure that standards remain open. They therefore wished to ensure that patentees holding candidate technologies give more specific commitments during the standard setting process as to the licensing terms that will be imposed once the standard has been set.

By way of example, the provisions proposed by VITA include

- an obligation on those submitting technologies to state the maximum royalty that will be sought in respect of any patents held;
- a sanction for failing to disclose patents and/or maximum royalties, in the form of a requirement to grant royalty-free licences;
- limits on the other terms which may be required, with a default position relating in particular to grant-backs, reciprocal licences, non-asserts, and covenants not to sue.

Previously, the competition authorities in both Europe and the US have considered that participants in standard setting should limit their deliberations to the technical suitability of the various proposed technologies, but should not address commercial questions. The European Commission is understood to have re-iterated this position to ETSI in the context of the review of the IPR policy which ETSI members undertook during 2006. The theoretical concern about such discussions is that any reference to commercial terms is tantamount to the standard setters agreeing the price at which the technology is made available—a form of price-fixing by a group of 'buyers' possessing the anti-competitive potential to drive down the price that a particular licensed technology can capture. Further, once a technology is chosen, the subsequent licensing out of that technology could be regarded as being subject to price fixing by a group of sellers.

The US DOJ did not take this view. Rather, it confirmed that—provided certain safeguards relating to the extent to which working group members can

<sup>23</sup> See footnote 9 above. The Commission issued a statement on 1 October 2007 saying that on 30th August it had opened formal proceedings against Qualcomm.

<sup>24</sup> See Department of Justice Business Review Letters to VITA and IEEE dated 30 October 2006 and 30 April 2007 respectively (available on [www.usdoj.gov](http://www.usdoj.gov))

actually discuss the licensing terms are in place—it should be acceptable for standards bodies to solicit provision of maximum royalty rates when a patented technology is submitted. The agency stated that it believed that this process would help to ensure that the conditions of competition which exist before a technology is chosen for a standard are preserved once the technology has been picked.

Will such measures be effective? The risk is that draconian *ex ante* obligations will deter technology developers from participating in open standards. Moreover, the principal basis for the DOJ's approach—that competition between technologies is preserved—is inapplicable where only one viable technology is available for a standard, or aspect of a standard. In this case, requiring the patentee to commit 'blind' to a maximum royalty rate could depress the value that could have been secured from the patent as compared with the open market position.

In contrast, there is also a risk that companies will notify such high maximum royalty rates—perhaps at a level which would lead to excessively high cumulative royalties when all of the technologies required to be licensed for a particular product are considered together—that the new obligation again becomes meaningless, and the actual royalty paid will again depend entirely on any given licensee's bargaining power.

### So how can 'unFRANDliness' be avoided?

The questions in this field are still far from being judicially determined. Faced with uncertainty, owners of essential patents must choose between two approaches.

The first approach is to seek to exploit the uncertainty by paying lip service to the (fairly clear) obligation to license declared essential patents, while seeking to obtain profit-maximizing royalties by approaching negotiations with third parties as pure commercial negotiations, from which the licensor is free to walk away after a respectable negotiating period if the prospective licensee will not pay the demanded licence fee. This approach is inappropriate where the prospective licensee also owns essential patents to which the licensor requires access. Even if there is a mismatch between the numbers and/or quality of the patents held by each party, each side in effect has the ability to block the other's access to market.

Another drawback may materialize if the putative licensor plans to sue the putative licensee for patent infringement. Such an outcome is likely if the licence in question is a renewal, so the licensee is already on

the market. Faced with a claim of patent infringement in relation to essential patents, the licensee is increasingly likely to fight back by claiming that the licensor's declaration of its willingness to licence essential patents deprives it of the right to claim an injunction, and limits its remedy to, at most, a right to damages, to be assessed on a FRAND basis. The risk of a court agreeing with this approach dampens the patentee's litigation firepower. Responding to such contractual and/or antitrust arguments is also liable to raise the costs and duration of such litigation considerably, which is why such cases usually result in pre-judgment settlement.

To reduce the risks of dispute about whether a given licence fee or royalty is FRAND, an essential patent holder can instead take an alternative approach. In this scenario, the licensor in effect concedes that the fairness requirement equates to some level of obligation on the patentee to conduct itself transparently (something which the application of EC competition law principles suggests may be appropriate). It requires the patentee to develop a licensing policy, which it is prepared to (or offers to) make available to prospective licensees. Such a policy would be likely to include some or all of the following points:

- An access fee (possibly payable in instalments) is intrinsically fairer than a royalty-based calculation, which arguably rewards the licensor for the licensee's own marketing and branding efforts, thus penalizing the licensee for competing on the very aspects of its product which allow it to stand out in the market.
- Equally, some regard should be had to the parties' relative exposure, ie the actual or likely volume of products sold by each incorporating the other's standardized technology.
- The starting point for the initial licence offer should take into account the number of other licences that the licensee will need in order to be able to access the market: in other words, it should factor in the need to ensure that cumulative fees do not make the end product commercially unviable.
- Licence fees for cross-licences should be quantified per licensor. Although one party will typically have a stronger portfolio than the other, leading to one paying only a balancing payment for the difference, the full royalties theoretically payable by each should be established and noted in the contract.
- Valuation should not be based solely on portfolio size. The intrinsic quality of the technologies involved (in this case, looking more at their centrality

to the standard rather than at the likely enforceability under the patent laws of any particular jurisdiction) is more important, being a fairer basis for payment.

- The stronger licensor should not seek asymmetric terms in its favour (eg one-way grant-backs); this should be taken to apply to all patents within the relevant portfolio, even if some patents/claims are not essential (eg it should not seek access to the licensee's non-essential patents if it is not prepared to grant access to its own such patents).
- Using a 'capture period' model is intrinsically fairer than limiting licences in time. The rules of many standards bodies (including ETSI) refer to the obligation to grant 'irrevocable' licences. While this may not, as a matter of contractual wording, prevent a time-limited licence from being granted, licence expiry and the corresponding need to renegotiate once the licensor is on the market is particularly liable to tempt the licensor to seek to capture more value than it is entitled to, and is particularly likely to lead to litigation (as the licensee is already on the market). The capture period model ensures that all patents granted as at a certain date, or within a certain date range, are licensed for life (contrast fixed term licences which grant access to all patents over a certain period, including patents newly granted in the term). Under the capture period model, a non-assert can be given over any patents which are newly granted within the term.

The policy is not failsafe. Cross-licences raise difficulties. Errors can be made in quantifying the relative value of each party's patent portfolio. Portfolio valuation is a dark art at the best of times, especially where the value of the transaction does not warrant the expense of engaging specialist valuation experts. Where the parties must weigh portfolios which may relate to different parts of the standard, where some technologies are core while others are peripheral, where there may be tens or hundreds of patents on each side, where the quality of the individual patents may vary both from the perspective of the value of the underlying technology and from that of the more technical questions of validity and essentiality, it is clear that no single value can be placed upon each portfolio. Rather, a fair and reasonable value of each individual licence is likely to lie within a range.

Some patentees may fear that these principles give away too much to potential licensees, who may also

hold essential patents and refuse to play by the same rules. However, the following benefits may arise:

- Licence agreements should be concluded much more rapidly, sparing valuable management time (transaction costs for negotiating cross-licences between major companies based in different parts of the world can be significant).
- The company's licensing policy can be made available to the licensee subject to a requirement for reciprocal treatment in cases where the prospective licensee also has standards essential technologies (standards bodies' rules often allow for this).
- The risks of facing an antitrust or breach of contract suit—with the attendant significant increase in legal costs and delay to the progress of the case—are reduced if patent enforcement becomes necessary.
- The risk of an actual adverse finding under either antitrust or competition law is significantly reduced.

Pending the further development of judicial precedent or the provision of further guidance by the standards bodies themselves, individual companies will take different approaches to complying with their FRAND obligations. Some may even find it in their interest to remain outside the standard-setting process to a greater extent than in the past, or may concentrate on developing 'commercially essential' technologies which are not subject to the rigour of the FRAND licensing regime.

## Continuing importance

Whatever the eventual outcome of the war of attrition between those who attempt to comply with FRAND obligations (and other standards body rules) and those who prefer to risk disregarding them, many skirmishes remain to be fought along the way.

One potential source of guidance in the next couple of years is the European Commission. Earlier this year the Commission announced that it has sent a statement of objections to US company Rambus<sup>25</sup> which relate to 'patent ambush' (ie a deliberately late declaration of a standard-essential patent). The remedies that the Commission proposes include an obligation on Rambus to licence its patents at a 'reasonable and non-discriminatory royalty rate, the precise amount of which should be determined having regard to all the circumstances of the case'. In previous cases involving IP rights, the Commission has used such obligations without giving any specific input as to the meaning of the obligation

25 See Commission press release MEMO/07/330 of 23 August 2007.



(rather in the manner of standards bodies themselves). However, in this case further guidance may be required. In the equivalent case brought in the USA by the Federal Trade Commission ('FTC'), the US regulator ordered that Rambus licence its patents at 'reasonable' royalty rates. The FTC has interpreted this to mean that Rambus should charge a maximum royalty rate of 0.5%, and that the technologies should be made available royalty-free after 3 years.<sup>26</sup> Rambus is appealing this decision, and it is likely that it will also contest vigorously any attempt by the European Commission to reduce the value that it can recover from its patents.

The Commission has also more recently<sup>27</sup> stated that it intends to pursue an investigation into the conduct of Qualcomm further to the complaint it received in 2005<sup>28</sup> about the terms on which Qualcomm licenses

its standard essential patents. It seems likely that this investigation will consider the standard against which Qualcomm's licensing practices should be assessed, which may involve a consideration of the meaning of FRAND and its relationship with Article 82.

In the meantime, more standards bodies may follow the lead of the IEEE and VITA in the US and reduce the damage that such in-fighting can do, by offering their own guidance on issues such as the meaning of FRAND. While this looks unlikely in the near future, the current level of litigation shows that standards continue to be of vital importance. This is one factor which is unlikely to change in the short term.

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<sup>26</sup> See reference at footnote 10. For further details of this case, please see Kostenko M and Treacy P. The FTC issues remedy order in the *Rambus* matter. *Journal of Intellectual Property Law & Practice*. 2007; 2: 430–432.

<sup>27</sup> See Commission press release MEMO/07/389 of 1 October 2007.

<sup>28</sup> See reference at footnote 9.